



## PREVENTION OPPORTUNITIES UNDER THE BIG SKY

### Did You Hear? Montana Newborn Hearing Screening and Intervention

Congenital hearing loss is one of the most common birth defects. Various studies report a prevalence of permanent congenital hearing loss between one and six per 1000 live births, based on the varied definitions of hearing loss. Half (50% - 60%) of hearing loss in babies is due to genetic causes, while 25% or more is due to environmental causes such as maternal infections during pregnancy and complications after birth.<sup>1</sup>

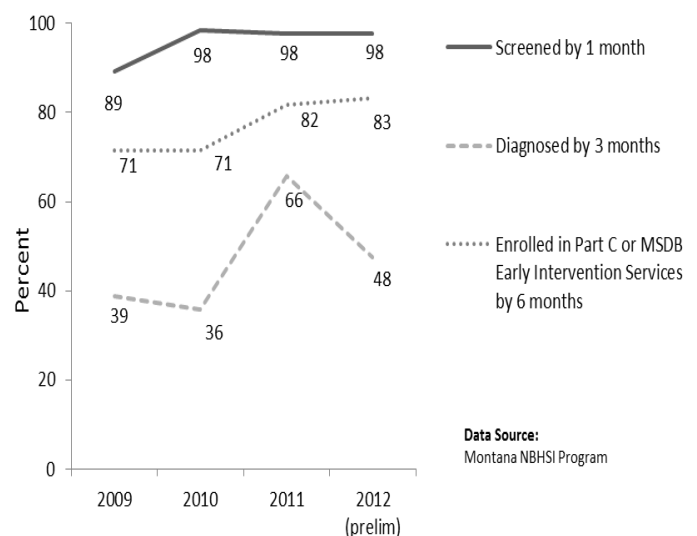
Newborn hearing screening and appropriate follow-up is essential to ensure that children with hearing loss meet their full potential. Infants with hearing loss who are identified and receive early and adequate intervention services are at significantly less risk of delayed language skills, negative educational consequences, and impaired social development.<sup>2</sup>

In 2007 Montana began requiring all hospitals to provide screening for congenital hearing loss at birth.<sup>3</sup> The Montana Newborn Hearing Screening and Intervention (NBHSI) Program is responsible for collecting all newborn hearing screening and diagnostic evaluation results and tracking babies who do not pass hearing screening. The NBHSI program is also responsible for ensuring that all infants diagnosed with hearing loss are referred to the Montana School for the Deaf and the Blind (MSDB), the agency mandated by law to track intervention services for these infants. This issue of *Montana Public Health* describes the Montana NBHSI Program and the results of screening, referral, and follow-up activities.

**The Montana Newborn Hearing Screening and Intervention Program** The NBHSI Program follows guidelines established by the Joint Committee on Infant Hearing. These guidelines are commonly referred to as the Early Hearing Detection and Intervention (EHDI) 1,3,6 Guidelines. The guidelines are:

1. All infants should have access to hearing screening using a physiologic measure before 1 month of age;
2. All infants who do not pass the initial hearing screen and the subsequent rescreening should have appropriate audiologic and medical evaluations to confirm the presence of hearing loss before 3 months of age;
3. All infants with confirmed permanent hearing loss should receive intervention services before 6 months of age.

Figure 1. Achievement of Early Hearing Detection and Intervention Guidelines, Montana, 2009-2012



### Missed Screenings in Non-Hospital Births

Of 12,071 Montana infants born in 2012, 97% received hearing screening. While 99% of infants born in hospitals received hearing screening, only 42% of infants born outside of hospitals were screened. Infants delivered by midwives (155/398; 39%) were less likely to be screened than were other infants (45/79; 57%) born in non-hospital settings.

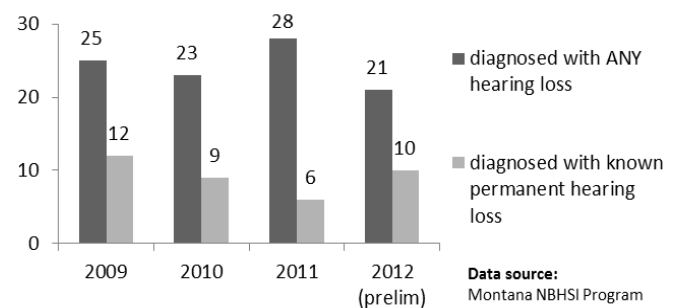
### Loss to follow-up (LTFU) Minimizing LTFU

after initial newborn hearing screening is a significant challenge for the Montana NBHSI program. The two step screening process requires that a second outpatient screening be completed for any baby who does not pass inpatient screening. In 2012, 66 (8%) babies who did not pass their initial hearing screening were lost to follow-up (i.e., no second screening was documented).

For the infants who did complete inpatient and needed outpatient screenings, 67 had results indicating the need for further evaluation by a pediatric audiologist. Parents and physicians of record were notified of screening results and the need for follow-up by both the birth hospital and the NBHSI program. However, only 37 (55%) of those infants received the diagnostic evaluations indicated.

**Reasons for LTFU** In 2012, 231 babies born in hospitals did not receive any hearing screening, did not complete second screenings, or they did not get needed diagnostic evaluations. The parents of 52 (22.5%) of those infants failed to follow up on referral information provided or respond to notifications of the need for additional follow-up. Another 28 (12%) families did not complete scheduled appointments for screenings or evaluations. Hospitals submitted documentation of parental refusal of screening or follow-up for 52 (22.5%) infants, 24 (10%) infants transferred to another hospital, and 6 (3%) families moved out of state. For the remaining 69 (30%) infants no documentation indicating a reason for no follow-up was submitted.

**Figure 2. Number of Infants Diagnosed with Hearing Loss Montana, 2009-2012**



### Recommendations to reduce loss to follow-up

- Provide additional screening resources for infants born outside a hospital with a specific focus on those infants delivered by midwives.
- Provide parents with educational materials about the importance of newborn hearing screening and appropriate follow-up if their child does not pass hearing screening before discharge from the hospital.
- Notify all primary care providers of infants who do not pass newborn hearing screening as soon as possible so they can initiate appropriate follow-up at well-baby visits.

For more information contact Shannon Koenig, [skoenig@mt.gov](mailto:skoenig@mt.gov), or see <http://www.dphhs.mt.gov/publichealth/newbornhearing/index.shtml>

### References:

1. American Speech-Language-Hearing Association Audiology Information Series: Causes of Hearing Loss in Children <http://www.asha.org/uploadedFiles/AIS-Hearing-Loss-Causes-Children.pdf>
2. Centers for Disease Control and Prevention: Hearing Loss in Children Facts <http://www.cdc.gov/ncbddd/hearingloss/facts.html>
3. Mont. Code Ann. § 53-19-404 (2) (a)

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